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LICHEN GENUS *EVERNIA* IN INDIA

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ABSTRACT

Three species of *Evernia*—*E. divaricata*, *E. mesomorpha* and *E. prunastri*—known from India have been treated in detail.

The genus *Evernia* Ach., family Usneaceae, is characterized by an erect to pendulous, repeatedly dichotomously branched, fruticose thallus with flattened to ± rounded, tapering branches; thin, soft cortex composed of suberect to horizontally disposed hyphae with thick gelatinised walls; arachnoid medulla lacking any mechanical axis; lateral to terminal, lecanorine apothecia; and colourless, simple spores. In general external morphology, *Evernia* is close to *Letharia & Ramalina* (Usneaceae), and *Pseudevernia* (Parmeliaceae). *Letharia* is distinguished by bright sulphur yellow thallus and presence of vulpinic acid. *Ramalina* has a firm cortex composed of compact, longitudinally disposed hyphae, and 2-celled spores, while *Pseudevernia* has a dorsiventral thallus with a dark to brown-black lowerside, at least near the base, and the cortices are paraplectenchymatous. Only three species of *Evernia* are known from India, where two of them appear to be restricted to the Himalayan region of Kashmir, and the third extends from W. Himalayas to E. Nepal. All the three taxa are widely distributed in the temperate regions of northern hemisphere, and particularly in Europe, and their occurrence in western Himalayas, thus represents examples of affinity of Indian lichen flora with that of European lichen flora. All three species have been found in sterile condition in India.

Key to the species

1a. Thallus lacking isidia and soredia, divaricately branched and laxly pendulous, cortex of branches often annularly broken exposing while medulla ... (1) *E. divericata*
1b. Thallus isidiate-sorediate or sorediate
  2a. Thallus ± caespitose, branches ± rounded, terete, irregularly to longitudinally wrinkled-foveolate, with dense, sorediate isidia (2) *E. mesomorpha*
  2b. Thallus distinctly flattened, reticulately wrinkled, nervose-foveolate, soralia on the thallus surface, sparse to dense ... (3) *E. prunastri*

1. Evernia divaricata (L.) Ach. Lichenogr. Univers.: 441, tab. 10, fig. 2, (1810). *Lichen divaricatus* L. Syst. Veget. ed. 12: 713 (1768). (Figs. 1 & 2.)

Thallus corticolous, pale yellow to light brown, pendulous, up to 25 cm long, distinctly divaricately, laxly branched; branches ± flattened to about 5 mm near the base, upwards narrower to rounded, terete, surface irregularly wrinkled; cortex often annularly broken exposing white medulla. Isidia, soredia and pseudocyphellae absent. Medullarly hyphae, often with dense incrustations on the surface; no strands of any kind in the medullary region. Apothecia not observed in the specimens examined,

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Cortex and medulla K–, C–, KC–, P–. Microcrystallography and TLC: divaricatic acid and sekikaic acid present.

Specimens examined: Jammu & Kashmir, Gulmarg and Gulmarg to Khilanmarg area, alt. 2560-3300 m, collected on coniferous tree twigs, or fallen on ground from the trees, 1968 *Awasthi* et al s.n. (LWU); same locality, *Dange* 77.455, 77.471, 77.494 (LWU); same locality, *Mujoo* 70.126 (LWU); same locality, *Singh and Ranjan* L18316 & L18317 (LWG).

2. **Evernia mesomorpha** Nyl. Lich. Scandin.: 74 (1860). (Figs. 3 & 4.)

Thallus usually corticolous, sometimes terricolous or saxicolous, suberect, to pendulous caespitose, 5-8 (13) cm long, somewhat blackish near the base, upwards yellowish green to pale grey, dichotomously to subdichotomously densely branched, main branches flat to irregularly rounded, up to 3 mm thick, gradually tapering apically, longitudinally to irregularly wrinkled, nervose foveolate. Thallus densely covered with sorediate isidia in major upper part of branches, soredia granular. Medulla white hyphae. Apothecia not observed in the specimens examined. Cortex and medulla K–, C–, KC–, P–. Microcrystallography and TLC: divaricatic acid, evernic acid, sekikaic acid and usnic acid present.

The taxon common in the Gangotri to Gomukh region occurs from Himachal Pradesh to E. Nepal.

Specimens examined: Himachal Pradesh, Parbati river valley, near Pulga, on trees, alt. *ca.* 2550-3150 m, *Awasthi & Dange* 75.113, 75.152, 75.163, 75.210, 75.273, 75.299, 75.369, 75.381, 75.390, 75.402, 75.415 (LWU); Uttar Pradesh, Uttarkashi district, Gangotri to Gomukh area, alt. *ca.* 3000-3600 m, on bark of trees, on ground and on rocks, *Awasthi & Singh* 8123, 8137, 8192, 8209, 8232, 8244, 8265, 8329, 8346, 8408, 8421, 8494, 8504, 8536 (herb. Awasthi); Nepal, East Nepal, Lobuje to Pamboche, alt. 4572 m, Rao 13823, and Porcha to Namche Bazar, alt. 3962 m, *Rao* 13848 (Herb. Assam) (not seen) and (herb. Awasthi)—reported as *Letharia vulpina* by *Awasthi* (1960).

3. **Evernia prunastri** (L.) Ach. Lichenogr. Univers.: 442, tab. 10, fig. 1 (1810). *Lichen prunastri* L. sp. Pl.: 1147 (1753). (Fig. 5)

Thallus corticolous, erect, yellow to yellowish brown, up to 3 cm tall, not much differentiation on upper and lower sides, linear to generally flattened flabellate, up to 10 mm wide, dichotomously lobed, surface reticulately wrinkled foveolate, cortex sometimes cracked. Thallus sparsely to densely sorediate; soralia marginal to laminal, generally more on lower side, rounded to irregular in outline, sometimes dense; soredia granular. Apothecia not observed in the specimen examined. Cortex and medulla K–, C–, KC–, P–. Microcrystallography and TLC: evernic acid and sekikaic acid present.

The taxon though widely distributed in the temperate regions of the world is rather scarce in India. It had been reported from Kashmir by Schubert & Klement (1966, p. 60), and only a single specimen has been examined by me. This Indian specimen is flabellately wide lobed showing a variation in comparison to the European specimens. Since only a single specimen has been examined, it is difficult to say whether this is due to fasciation or it is a distinct variety.

Specimen examined: Jammu & Kashmir, Yarikah pine forest, on bark of trees, 1954 comm. *Seshadri* as A 4 (Herb. Awasthi 3409).

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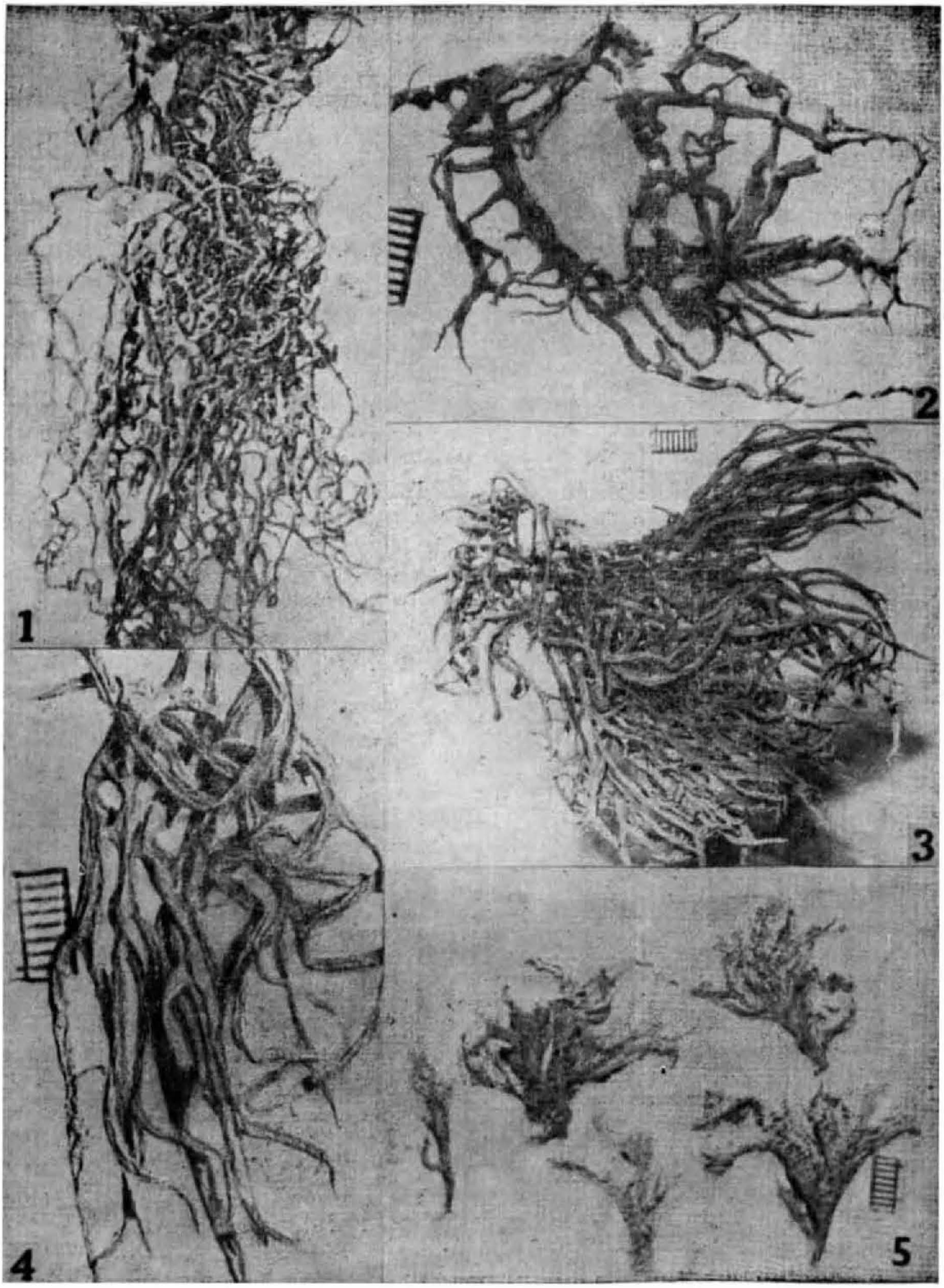

Plate I. Figs. 1-5 : 1-2. *Evernia divaricata* (L.) Ach. (Mujoo, 70.126). 3-4. *Evernia mesomorpha* Nyl. (Awasthi & Singh 8244). 5. *Evernia prunastri* (L.) Ach. (Seshadri A 4).

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